Draft
Air Toxic Control Measure (ATCM)
For Portable Diesel-Fueled Engines
9/12/03

Please Note: This draft regulation is an Air Resources Board (ARB) staff proposal. Portions of this regulation may be subject to change, including compliance dates and requirements. ARB staff is soliciting comments on the draft regulation and based upon comments received and further staff analysis, parts or all of the draft regulation may change.

(a) PURPOSE

The purpose of this airborne toxic control measure (ATCM) is to reduce diesel particulate matter (PM) emissions from portable diesel-fueled engines having a rated brake horsepower of 50 or larger ($\geq$ 50 hp).

(b) APPLICABILITY

(1) Except as provided below, all applicable portable engines having a maximum rated capacity of 50 bhp or larger and fueled with diesel are subject to this regulation.

(2) The following are not subject to this regulation:

(a) Any engine used to propel mobile equipment or a motor vehicle of any kind;

(b) Any portable engine using an alternative fuel;

(c) Any engine not meeting the definition of portable as defined in the Definitions Section of this regulation

(d) Military tactical support equipment;

(e) Diesel pile-driving hammers;

(f) Ground support equipment at airports whose diesel PM emissions are regulated by an enforceable Memorandum of Understanding (MOU) with the local air district or Air Resources Board; and

(g) Portable engines operated on either San Clemente or San Nicolas Island.

(c) DEFINITIONS

(1) **Air Contaminant** means any discharge, release, or other propagation into the atmosphere which includes, but is not limited to, smoke, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof.

(2) **Air Pollution Control Officer** means the Executive Officer or director of a district, or his/her delegate.

(3) **Alternative fuel** means natural gas, propane, ethanol, or methanol.

(4) **Alternative Diesel Fuel** means any fuel used in a CI engine that is not a reformulated CARB diesel fuel as defined in Title 13 CCR Sections 2281 and 2282 or an alternative fuel, and does not require engine or fuel system modifications for the engine to operate, although minor modifications (e.g., recalibration of the engine fuel control) may enhance performance. Examples of alternative diesel fuels include, but are not limited to, biodiesel, Fischer Tropsch fuels, and emulsions of water in diesel fuel. An emission control strategy using a fuel additive will be treated as an alternative diesel fuel based strategy unless:

(A) the additive is supplied to the engine fuel by an on-board dosing mechanism, or

(B) the additive is directly mixed into the base fuel inside the fuel tank of the engine, or

(C) the additive and base fuel are not mixed until engine fueling commences, and no more additive plus base fuel combination is mixed than required for a single fueling of a single engine.

(5) **CARB Diesel Fuel** means any diesel fuel that meets the specifications defined in subsection (e)(12) and meets the specifications defined in *Title 13 CCR sections 2281, 2282, and 2284*.

(6) **Diesel Particulate Matter (PM)** means the particles found in the exhaust of diesel-fueled CI engines which may agglomerate and adsorb other species to form structures of complex physical and chemical properties.

(7) **District** means an air pollution control district or air quality management district created or continued in existence pursuant to provisions of Part 3 (commencing with section 40000) of the California Health and Safety Code.

(8) **Engine** means any piston driven internal combustion engine.

(9) **Executive Officer** means the Executive Officer of the California Air Resources Board or his / her designee.

(10) **Farm Equipment** means equipment that uses an engine and that is primarily used (as defined below) in the commercial production and or commercial harvesting of food, fiber, wood, or commercial organic products or in the processing of such products for further use on a farm.

(11) **Fleet** refers to an engine or group of engines under the same ownership or operation, or which are owned or operated by entities which are under common control.

(12) **Fuel additive** means any substance designed to be added to fuel or fuel systems or other engine-related systems such that it is present in-cylinder during combustion and has any of the following effects: decreased emissions, improved fuel economy, increased performance of the entire vehicle or one of its component parts, or any combination thereof; or assists diesel emission control strategies in decreasing emissions, or improving fuel economy or increasing performance of a vehicle or component part, or any combination thereof. Fuel additives used in conjunction with diesel fuel may be treated as an alternative diesel fuel.

(13) **Level 3 Verified Technology** means a technology that has satisfied the requirements of the "Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines" in title 13, California Code of Regulations, commencing with section 2700 and has demonstrated an reduction in diesel particulate matter of 85% or greater.

(14) **Location** means any single site at a building, structure, facility, or installation.

(15) **Maximum Rated Horsepower (brake horsepower (bhp))** is the maximum brake horsepower rating specified by the portable engine manufacturer for continuous duty and listed on the nameplate of the portable engine.

(16) **Modification** means any physical change in portable engine or method of operation, or an addition to an existing portable engine, which may cause or result in the issuance of air contaminants not previously emitted.

Physical changes include, but are not limited to: engine replacement, engine repower, use of a verified alternative diesel fuel, or addition of a verified control system. Routine maintenance and/or repair shall not be considered a physical change. Unless previously limited by an enforceable registration condition, a change in the method of operation shall not include:

(A) an increase in the hours of operation;

(B) a change of ownership; or

(C) the movement of a portable engine from one location to another;

(17) New Nonroad Engine means a domestic or imported nonroad engine, the equitable or legal title to which has never been transferred to an ultimate purchaser. If the equitable or legal title to an engine is not transferred to an ultimate purchaser until after the engine is placed into service, then the engine will no longer be new after it is placed into service. A nonroad engine is placed into service when it is used for its functional purposes. The term ultimate purchaser means, with respect to a new nonroad engine, the first person who in good faith purchases a new nonroad vehicle or a new nonroad engine for purposes other than resale.

(18) Nonroad Engine means:

(A) Except as discussed in paragraph (B) of this definition, a nonroad engine is any engine:

(1) in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers); or

(2) in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or

(3) that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform.

(B) An engine is not a nonroad engine if:

(1) the engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under section 202 of the federal Clean Air Act; or

(2) the engine is regulated by a federal New Source Performance Standard promulgated under section 111 of the federal Clean Air Act; or

(3) the engine otherwise included in paragraph (A)(3) of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location approximately three (or more) months each year.

(19) Outer Continental Shelf (OCS) shall have the meaning provided by section 2 of the Outer Continental Shelf Lands Act (43 U.S.C. Section 1331 et seq.).

(20) Portable means designed and capable of being carried or moved from one location to another. Indicia of portability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. For the purposes of this regulation, dredge engines on a boat or barge are considered portable. The engine or equipment unit is not portable if any of the following are true:

(A) the engine or equipment unit or its replacement is attached to a foundation, or if not so attached, will reside at the same location for more than 12 consecutive months. Any engine or equipment unit such as back-up or stand-by engines or equipment units, that replace engine(s) or equipment unit(s) at a location, and is intended to perform the same or similar function as the engine(s) or equipment unit(s) being replaced, will be included in calculating the consecutive time period. In that case, the cumulative time of all engine(s) or equipment unit(s), including the time between the removal of the original engine(s) or equipment unit(s) and installation of the

replacement engine(s) or equipment unit(s), will be counted toward the consecutive time period; or

(B) the engine or equipment unit remains or will reside at a location for less than 12 consecutive months if the engine or equipment unit is located at a seasonal source and operates during the full annual operating period of the seasonal source, where a seasonal source is a stationary source that remains in a single location on a permanent basis (at least two years) and that operates at that single location at least three months each year; or

(C) the engine or equipment unit is moved from one location to another in an attempt to circumvent the portable residence time requirements.

[Note: The period during which the engine or equipment unit is maintained at a storage facility shall be excluded from the residency time determination.]

(21) Registration means issuance of a certificate by the Executive Officer acknowledging expected compliance with the applicable requirements of this Statewide Portable Equipment Registration Program.

(22) Responsible Official refers to an individual with the authority to certify that the portable equipment complies with applicable requirements of this regualtion.

(23) Stationary Source means any building, structure, facility or installation which emits any affected pollutant directly or as a fugitive emission. Building, structure, facility, or installation includes all pollutant emitting activities which:

(A) are under the same ownership or operation, or which are owned or operated by entities which are under common control;

(B) belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and

(C) are located on one or more contiguous or adjacent properties.

[Note: For the purposes of this regulation a stationary source and nonroad engine are mutually exclusive.]

(24) Storage means a warehouse, enclosed yard, or other area established for the primary purpose of maintaining portable engines or equipment units when not in operation.

(25) Tactical Support Equipment (TSE) means equipment using a portable engine, including turbines, that meets military specifications, owned by the U.S. Department of Defense and/or the U.S. military services, and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations. Examples include, but are not limited to, internal combustion engines associated with portable generators, aircraft start carts, heaters and lighting carts.

(26) Tier IV emission standards refers to emission standards proposed for adoption in April 2003, and expected to be finalized by the U.S. EPA for newly manufactured off-road engines designed to achieve the lowest diesel PM emissions.

(27) Transportable means the same as portable.

(28) Verified emission control strategy refers to a diesel emission control strategy or system that has received approval from the Executive Officer according to the "Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines" in title 13, California Code of Regulations, commencing with section 2700, and incorporated by reference.

(29) Volatile Organic Compound (VOC) means any compound containing at least one atom of carbon except for the following exempt compounds: acetone, ethane, parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene), methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonates, methylene chloride (dichloromethane), methyl chloroform (1,1,1-trichloroethane), CFC-113 (trichlorotrifluoroethane), CFC-11 (trichlorofluoromethane), CFC-12 (dichlorodifluoromethane), CFC-22 (chlorodifluoromethane), CFC-23 (trifluoromethane), CFC-114 (dichlorotetrafluoroethane), CFC-115 (chloropentafluoroethane), HCFC-123 (dichlorotrifluoroethane), HFC-134a (tetrafluoroethane), HCFC-141b (dichlorofluoroethane), HCFC-142b (chlorodifluoroethane), HCFC-124 (chlorotetrafluoroethane), HFC-23 (trifluoromethane), HFC-134 (tetrafluoroethane), HFC-125 (pentafluoroethane), HFC-143a (trifluoroethane), HFC-152a (difluoroethane), cyclic, branched, or linear completely methylated siloxanes, the following classes of perfluorocarbons:

(A) cyclic, branched, or linear, completely fluorinated alkanes;

(B) cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(C) cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

(D) sulfur-containing perfluorocarbons with no unsaturations and with the sulfur bonds to carbon and fluorine, acetone, ethane, and parachlorobenzotrifluoride (1-chloro-4-trifluoromethyl benzene).

(30) U.S. EPA refers to the United States Environmental Protection Agency.

(d) REQUIREMENTS

(1) Portable diesel-fueled engines can only use the following fuels:

(A) CARB diesel fuel; or

(B) alternative diesel fuel that have been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines; or

(C) CARB diesel fuel utilizing fuel additives that have been verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.

[Note that credit for diesel PM reductions for CARB diesel fuel blends that use biodiesel, Fischer Tropsch fuels, or emulsions of water in diesel fuel is based upon the results of information verified through the Verification Procedure for In-Use Strategies to Control Emissions from Diesel Engines.]

(2) Except as provided in (d)(3) and (4), for applications filed to initially register or permit a portable engine after the effective date of this regulation, the portable engine must satisfy one of the following:

(A) be certified to an emissions standards applicable for newly manufactured off-road engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations; or

(B) if the engine is not certified to an off-road engine emissions standard, satisfy the applicable operating restriction requirements contained in Section (d)(8). The operating restrictions shall remain effective until the initial fleet requirements become effective in 2008.

(3) The operating restrictions required by (d)(3)(B) do not apply to portable engines that have not been subject to district permitting requirements prior to January 1st, 2004.

(4) For applications filed to initially register or permit a portable engine after January 1st 2008, the portable engine must meet the most stringent federal or California emission standard for off-road engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations.

(5) Districts may require additional operational restrictions through district permits or other means deemed enforceable by the district for engines registered with the Statewide Portable Equipment Registration Program at a specific location if operation of the engines at that location has resulted in a public nuisance, as defined in Health and Safety Code Section 41700.

(6) Fleet Requirements

(A) Except as provided in (B), each fleet is subject to and must comply with the following weighted PM emission fleet averages (expressed as g/bhp-hr) by the listed compliance dates:

Fleet Standard Compliance Date	All Engines with Horsepower <175	All Engines with Horsepower ≥175
1/1/08	0.5	0.28
1/1/10	0.4	0.21
1/1/15	0.2	0.08
1/1/20	0.04	0.02

(B) Portable engines operated on a dredge, and used to operate a suction pump, generator, or main hoist shall be subject to must comply with the following weighted PM emission fleet averages (expressed as g/bhp-hr) by the listed compliance dates:

Fleet Standard Compliance Date	All Engines with Horsepower <175	All Engines with Horsepower ≥175
1/1/08	0.2	0.08
1/1/10	0.04	0.02

All other engines operated on a dredge are subject to the requirements of (d)(6)(A).

(C) The fleet requirements in (d)(6)(A) and (d)(6)(B) do not apply to engines equipped with properly operating SCR systems as of January 1st, 2004. After January 1st, 2004, the Executive Officer may exempt, on a case-by-case basis, portable engines equipped with SCR systems from the fleet requirements in (d)(6)(A) and (d)(6)(B).

(D) The fleet requirements in (d)(6)(A) do not apply if the following requirements are satisfied:

(1) the fleet is comprised of five or fewer portable engines; and

(2) the owner commits to replacing the entire fleet with engines certified to Tier IV emission standards for federally- or California- certified newly manufactured off-road engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations; and

(3) for each class and category of off-road engine, the replacement must occur within two years of the first engine being offered for sale that satisfies the Tier IV standards.

(E) The fleet averages can be satisfied with implementation of, but not limited to, the following options: engine replacement, engine repower, use of a verified alternative diesel fuel, addition of a verified control system, replacement of a diesel engine with an engine using an alternative fuel, or electrification. The weighted fleet PM emission average is determined by following the procedure given in section (d)(7), Fleet Average Calculation.

(F) Beginning on January 1, 2008, the weighted average PM emission rate for the fleet cannot exceed the fleet standard that is in effect.

(7) Fleet Average Calculations

(A) General Provisions

(1) the average PM emission factor for the fleet is determined by the following formula:

$$\frac{\sum \text{Summation for each engine in the fleet (hp x emission factor x annual operating hours)}}{\sum \text{Summation for each engine in the fleet (hp x annual operating hours)}}$$

where:

hp = horsepower at maximum rated capacity.

emission factor = diesel pm emission rate, as determined below:

Annual Operating Hours = actual hours of operation for the most recent available calendar year

(2) The following diesel PM emission rates can be used with the above formula to determine the weighted average fleet emission rate:

(a) for engines certified to a nonroad engine standard, the results of emission measurements submitted to either the U.S. EPA or CARB for the purposes of satisfying the appropriate emission standard; or

(b) for uncertified engines, except as allowed in (c), the appropriate emission factors from Appendix A; or

(c) for engines that are greater than 750 horsepower and manufactured prior to January 1st, 2000, results from approved emission tests. The emission test must meet the following requirements:

(1) the measurements shall be conducted with approved ARB test methods; and

(2) the duration of the emissions test is sufficient to document the typical operation of the engine; and

(3) approval of the test protocol must be obtained from the Executive Officer prior to conducting the emission testing.

(3) results from emission measurements from a verification approved by the Executive Officer for an emission control system or strategy can be used in conjunction with (2).

(B) The hours used for the fleet calculation shall include only operation in California, including its state territorial waters. Operation within the Outer Continental Shelf can be excluded from the fleet calculation.

(C) For the purposes of this regulation, the fleet average will include all engines of a company operated in California, including portable engines registered with the Statewide Portable Equipment Registration Program or permitted with local districts.

(D) The following incentives can be used to revise the fleet average, as outlined below:

(1) Credit can be given toward satisfying the 1/1/10 weighted fleet averages for non-certified engines that are replaced with engines certified to the Tier IV off-road engine standards.

(a) To receive the credit, the following conditions must be satisfied:

(1) The owner submits written notification that specific engines are to be replaced with engines certified to the Tier IV newly manufactured off-road engine standards; and

(2) For each class and category of off-road engine, the replacement must occur within one year of the first engine being offered for sale which satisfies the Tier IV standards.

(b) For the purposes of the weighted fleet average determination, engines satisfying these requirements can use the emission rate of the Tier IV engine for the first 500 hours. Additional hours beyond 500 hours shall be based upon the appropriate emission factor from Section (7)(A)(2).

(2) Where equipment uses grid power for more than 200 hours in lieu of operating a diesel engine for a given project, the time period grid power is used can be used to reduce the affected engine's overall diesel PM emissions. To receive credit for grid power in the fleet calculation, the recordkeeping and reporting requirements in Section (e) must be satisfied.

(3) After the effective date of this regulation, when an alternative fueled engine replaces a diesel engine in an existing fleet, the emission factor for the alternative fueled engine can be used in determining a company's compliance with the weighted fleet emission average.

(8) An uncertified portable engine subject to the operating restrictions, per Section (d)(2)(B), cannot exceed the annual operating limits specified in Table 1 for each district whithin which the portable engine is operated**.**

Table 1
Operation Limitations for
Non-certified Engines

Engine horsepower	**PM Emission Rate 0.55 g/bhp-hr**	**PM Emission Rate 0.75 g/bhp-hr**
50-99	100	75
100-300	40	30
>300	30	20

(e) RECORDKEEPING AND REPORTING

(1) A fleet is not subject to the requirements of this section if **all** the portable engines of the fleet satisfy either one of the following requirements:

(A) the engine is certified to tier IV emission standards for newly manufactured off-road engines; or

(B) the engine is equipped with a properly functioning level-3 verified emission control system.

Fleets that include engines with properly operating SCR systems, as of January 1st , 2004, can exclude these engines from the above determination.

(2) The following requirements become effective 1/1/05:

(A) For all engines included in the fleet emission determination, the owner/operator shall maintain records to verify each engine's actual operation within California on an annual basis. The records shall meet the following requirements:

(1) the period for reporting shall be a calendar year (January 1st through December 31st); and

(2) records for the operation of an individual engine shall be kept onsite, and available upon request for inspection to local air pollution control district personnel. Hours of operation that is

excluded form the fleet average, such as out-of-state operation, shall be clearly identified in the records.

(B) In addition to the requirements above in (e)(2)(A), for each engine that is subject to operational restrictions, the owner/operator shall maintain records indicating the annual hours of operation for each district within which the engine operates.

(C) The follow requirements must be satisfied for electrification to be used in determining the fleet average,

(1) the owner/operator must give notification to the Executive Officer identifying the dates, location, duration of the project, and a description of the project that will rely on electrification instead of using diesel engines. The notification must be provided prior to the start of the project; and

(2) the records for each affected engine must clearly identify the use of electrification; and

(3) the owner/operator must retain copies of contracts or other documentation, with the project proponent and/or applicable utility, supporting the use of grid power. Copies of the documentation must be submitted with the Statement of Compliance.

(D) Records for the fleet shall be maintained at a central place of business for five years. These records are to be made available, upon request for inspection, to local air pollution control district or CARB personnel. The records shall satisfy the following requirements:

(1) clearly identify each engine in the fleet, including: make, model, serial number, and year of manufacture for each engine; and

(2) if applicable, annual hours of operation for each district within which the engine operates; and

(3) total hours of operation for each engine and for the entire fleet.

(E) Each portable engine shall be equipped with an operational and properly maintained non-resettable hour-meter.

(3) The responsible official of the fleet shall provide the following reports as identified below to the Executive Officer:

(A) A status report, due to the Executive Officer by March 1, 2006 that includes the following items:

(1) The fleet's weighted average PM emissions based on the actual operation of the fleet for the 2005 calendar year, including a summary of the fleet's operation; and

(2) Inventory of portable engines in the fleet and for each engine in the fleet, identification whether the engine is state-registered, permitted with the district, or was considered exempt from permit requirements as of 1/1/04.

(B) A statement of compliance signed by the responsible official that the fleet standards are being achieved and a summary of the fleet's operation for the most current year of actual operation available. The statements of compliance are due to the Executive Officer by the following dates:

(1) 3/1/09 for the fleet standards that become effective 1/1/08;

(2) 3/1/11 for the fleet standards that become effective 1/1/10; and

(3) 3/1/16 for the fleet standards that become effective 1/1/15.

(C) The responsible official shall identify to the Executive Officer, as part of the 2009 statement of compliance report, the specific engines in the fleet that will be replaced with Tier IV engines or alternative fueled engines.

(D) After 1/1/08, the APCO or the Executive Officer can require the submittal of information demonstrating compliance with the applicable weighted fleet average. Upon receiving the request, the owner/operator shall provide the requested information within 30 days.

(f) ENFORCEMENT OF FLEET REQUIREMENTS

(1) Both the Executive Officer and the APCO have the authority to review or seek enforcement action for violation of the fleet emission standard.

(2) The ARB will make available to the districts the information owners/operators have provided to ARB to demonstrate compliance with the fleet standard.